

CLAIMS

1. Tyre for vehicles, comprising:

- 5 - a carcass structure (2) including a central peripheral portion (3) and two side-walls (4, 5) terminating in a pair of beads (9, 10) for fixing a wheel to a rim (11);
- 10 - a belt structure (12) coaxially associated with the carcass structure (2);

- a tread (14) with a predetermined thickness between its radially external surface and its radially internal surface in contact with said belt structure, said tread
15 extending coaxially around the belt structure (12) and comprising a row of central blocks (16) and a row of intermediate blocks (17), both the rows being arranged on each side of the equatorial plane (Y-Y) of the tyre
20 between a central longitudinal groove (18) formed astride said equatorial plane (Y-Y) and a pair of longitudinal lateral grooves (19, 20), said blocks of the central and intermediate rows being circumferentially spaced respectively by a plurality of
25 first and second transverse grooves (27,28) extending in a direction substantially perpendicular to a predetermined direction of forward travel of the tyre (D), each block being formed by a pair of transversal sides, respectively a front side and a rear side,
30 relative to said direction of forward travel D, and by a pair of longitudinal sides, the blocks of the central rows being separated from the blocks of the intermediate rows by a pair of circumferential sipes (25), characterized in that:

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a) the blocks of the intermediate rows are circumferentially staggered by a first predetermined quantity Q relative to the blocks of the central rows;

- b) the blocks of the central rows arranged on either side of the equatorial plane are each other circumferentially staggered by a second predetermined quantity Q' ;
- 5 c) the first and the second transverse grooves have centre lines (m_1 , m_2) converging in the direction of travel D on planes parallel to the equatorial plane;
- 10 d) the first and the second transverse grooves have centre lines inclined at an angle α in opposite directions to one another with respect to said planes parallel to the equatorial plane;
- 15 e) the depth of the transverse grooves is equal to at least 95% of the thickness of said tread.
2. Tyre according to Claim 1, characterized in that the width of the transverse grooves is comprised
- 20 between 8 and 11 mm.
3. Tyre according to Claim 1, characterized in that the width of the longitudinal grooves is comprised between 10 and 14 mm.
- 25 4. Tyre according to Claim 1, characterized in that the depth of the longitudinal grooves is equal to at least 95% of the thickness of said tread.
- 30 5. Tyre according to Claim 1, characterized in that it comprises, in a position axially outside the intermediate rows, a row of shoulder blocks and elastic means for connecting together circumferentially adjacent blocks.
- 35 6. Tyre according to Claim 5, characterized in that said elastic connection means consist in the presence of a relief in the transverse groove between successive shoulder blocks, said relief extending up to

a predetermined height.

7. Tyre according to Claim 5, characterized in that the shoulder blocks are circumferentially staggered relative to the blocks of the intermediate rows.

8. Tyre according to Claim 5, characterized in that the longitudinal outermost sides of the shoulder blocks are provided with facets.

9. Tyre according to Claim 1, characterized in that the transverse grooves form, together with the longitudinal sipes, an angle α of between 10° and 15° .

10. Tyre according to Claim 1, characterized in that said first quantity Q of circumferential staggering of the blocks is comprised between 48% and 58% of the length of a block.

11. Tyre according to Claim 1, characterized in that said second quantity Q' of circumferential staggering of the blocks of the central rows is comprised between 47% and 57% of the length of a block.

12. Tyre according to Claim 1, characterized in that said second quantity Q' of circumferential staggering of the blocks of the central rows is substantially equal to the first quantity Q of staggering of the blocks of the intermediate and central rows.

13. Tyre according to Claim 1, characterized in that the longitudinal sipes have a maximum width of 3 mm.

14. Tyre according to Claim 12, characterized in that the depth of the longitudinal sipes is comprised between 19 and 22 mm.

15. Tyre according to Claim 1, characterized in that the front and rear sides of the blocks of the central row are formed by two straight portions
5 inclined at said angle α with respect to the longitudinal sipes and by a third intermediate spacing portion connecting together said straight portions.

16. Tyre according to Claim 1, characterized in
10 that said third connecting portion forms an angle β with a plane perpendicular to the equatorial plane, said angle being comprised between 30° and 40° .

17. Tyre according to Claim 1, characterized in
15 that it comprises means for mutual engagement of the blocks of the intermediate and central rows.

18. Tyre according to Claim 16, characterized in that said mutual engagement means consist in the fact
20 that the longitudinal sipes separating said rows have a zigzag pattern.

19. Tyre according to Claim 1, characterized in that the central longitudinal groove has a width of
25 between 8 and 15 mm.

20. Tyre according to Claim 1, characterized in that the depth of the central longitudinal groove is
between 19 and 22 mm.

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21. Tyre according to Claim 1, characterized in that the central longitudinal groove is provided with a rib radially extending from the bottom thereof.

35 22. Tyre according to Claim 21, characterized in that said rib is formed by a plurality of reliefs alternating with recesses.